THE PATENT OFFICE OF THE REPUBLIC OF POLAND

A CERTIFICATE

Agenor KRYGLER
Alicja KRYGLER

Warsaw, Poland

on May 26th 2003 submitted to the Patent Office of the Republic of Poland an application for granting a patent for an invention called **„Electronic Parking Meter System and a method of collecting fees for parking vehicles."**

The description of the invention, which was attached to this certificate, the author's claims and the drawing are true copies of the documents, which were submitted together with the application on May 26th 2003.

The application was submitted under the following number: P-360334.

Warsaw, as of July 11th, 2003

on behalf of the President

Eng. Barbara Zabczyk
Governor

Electronic Parking Meter System and
a method of collecting fees for parking vehicles

The object of the invention is an electronic parking meter system and a method of collecting fees for parking vehicles.

There are devices and electronic systems known to be applied in parking machines, among others as they are described by German patents No. 4207236, 3840258, 4013719, 4039653, 4114055 and by American patent no. 4876540. These devices are applied in garage as well as parking places for cars. However the above solutions are not related directly or indirectly to the solution, which is the object of this invention. There is also an electronic parking meter system known from the applied Polish patent No. P-351531. The above mentioned system includes among others a microprocessor connected to a buzzer and a quartz timer, while a keyboard is plugged into the input of the system and a diode display of the number of parking place is connected to the output.

The essence of the invention is an electronic system for collecting fees for parking vehicles, which has a central control system, which incorporates the first input for a signal of a payment card interface, the second input for a keyboard system, the third input for a signal of a time generator, the fourth input for a signal from a supply system and includes the first output connected with a payment card interface, the second output with a visual indicator, the second output connected with a voice notification system, the third output connected with a sound notification system, and payment card has an input for a signal with payment card interface and an output to the payment card interface. However the method of collecting the fee for parking vehicles by means of the electronic parking meter system is based on two phases of payment cycle. The first phase of the cycle starts by transmitting the signal from payment card by means of the payment card interface to a control unit after a signal from keyboard system occurred in result of switching it on. After verification and acceptance of the payment card by the control unit, a transfer of the lump fee for parking takes place from the payment card to the payment card interface system, and from this place to the control unit, which sets up an individual account in its storage, in which it stores identifier of the payment card and the value of the fee paid, and also sends signals to the systems of visual indicator of voice system and sound

notification system, starting the process of decreasing the state of the account, assigned to the time base selected from keyboard system in line with the tact of the signal from the generator. The second phase of the payment cycle, which is based on a return of the unused fee, starts by transfer of signal from payment card, through the interface of the payment card to control unit and if the identification code of the payment card is compatible with the code of one of the accounts of the control unit and if the state of the account, associated with the code of the payment card is positive, then the control unit sends a signal to the payment card interface, which makes a return of the unused fee to the payment card. If payment was made by more than one card, the return will be made to the last one.

The main advantage of the invention is the fact that the parking meter returns the fee for unused parking time and the display informs about the state of the account of the payment card. Moreover, the parking meter does not require any technical service. Only once in three years the battery should be changed. It also does not require any monitoring.

The object of invention is illustrated on the attached drawing, which shows its block diagram.

The electronic system of the parking meter for collecting fees for parking vehicles, according to the invention, has a central control system 6, which incorporates the first input for the signal of the interface of the payment card 2, the second input of the keyboard system 3, the third input for the signal of the time generator 4, the fourth input for the signal of the supply system 5 and incorporates the first output connected with the interface of the payment card 2, the second output with the visual indicator 7, the second output connected with the voice notification system 9, and the payment card 1 has an input for the signal from the interface of the payment card 2 and an output to the interface of the payment card.

The method of collecting fees by the electronic parking meter system for collecting fees for parking vehicles is based on two phases of the payment cycle. The first phase starts by transmitting the signal from the payment card 1 through the interface of the payment card 2 to the control unit 6, after the signal from the keyboard system has occurred, in result of switching it on, and after verification and acceptance of the payment card by the control unit 6 was made. Next a transfer of a lump fee for parking from payment card 1 to the payment card interface system 2 is made, and from here to the control unit 6, which sets up an individual account in its storage, in which it stores identifier of the payment card and the value of the fee paid, and also sends signals to the systems of visual indicator 7, the voice system 8 and the sound notification system 9, starting the process of decreasing the state of the account, which

is assigned to selection made by means of the keyboard system 3, in line with the tact of the signal of time base generator 4.

The method of collecting fees for parking is based on performing the payment cycle, which consists of two phases. The time interval between the phases is optional. The first phase of the payment cycle is based on paying a lump fee and switching on the keyboard 3, with the number of the parking place. A signal is transferred from the keyboard system 3 to the control unit 6. The control unit 6 sends to the payment card interface 2 a signal requesting verification of the card and transfers the signal of the balance and identification number of the card. After a successful result of verification, it transmits the signal of the lump fee transfer from card 1 by means of the payment card interface system 2. It also transmits information about this fact to the following systems: visual indicator 7, voice system 8, and sound notification system 9. The amount of this prepayment may be increased by sending a signal from the keyboard 3. After receiving the transfer from the card 1, the control unit 6 sets up an individual account in its storage, in which it stores the identifier of the payment card and the value of paid fee. Starting with this moment, the control unit 6, timed by the impulses of the time base generator 4, starts decreasing the state of the account of paid time.

The method / time function/ of decreasing the state of the account is a specific feature of the control unit 6, and particularly it may be a linear or progressive function of time. The supply system 5 supplies power to all other units of the system for collecting fees for parking. The second phase is based on verification of the payment card by transmitting the signal of card acceptance 1, its balance, and identification number through the card interface 2 to the control unit 6, which verifies the applied card and next sends signal to the following systems: visual indicator 7, voice system 8, and sound notification system 9. In case the authenticity of the card 1 and the unique code of this card was recorded in the storage of the control unit 6, and in case when in the same time the balance is positive on the individual account, which is set up in the device for each payment card, a signal is generated by the control unit 6 to the payment card interface 2, and from here to the payment card, which transfers the fees, accumulated on the account of the control unit 6, associated with the code of the payment card to its account and back, performing in this way a return of the unused fee for parking.

The fee is collected from the payment carrier /a CHIP card/ in the system for collecting fees, in the time of when parking is started and the account is settled in the moment when parking is finished.

Each card is equipped with a unique code, which enables to identify it for the purpose of collecting fees. An advance payment of collecting the fee is started when the signal of card acceptance is transmitted in the system for collecting fees, and when the acoustic and light signal occurs. In result of conjunction of both signals, automatic collection of a certain fee from the payment card takes place, for example two hours, and the electronic system remembers the unique identification code of the card. This signal starts the timing system, the increase of payment in the function of time. The fee for parking may be both linear and not linear for example as a progressive function of time. This function is appropriate to the device of the system for collecting fees. The signal informing about collection of lump fee is transferred in the form of visual, sound or voice information or to all these indicators in the same time. When the fee for parking is used up, a signal about the end of payment cycle occurs as well as a signal of erasing the identification code of the card from the storage of the system for collecting fees.

Agenor Krygler
Illegible signature

Alicja Krygler
Illegible signature

The author's claims:

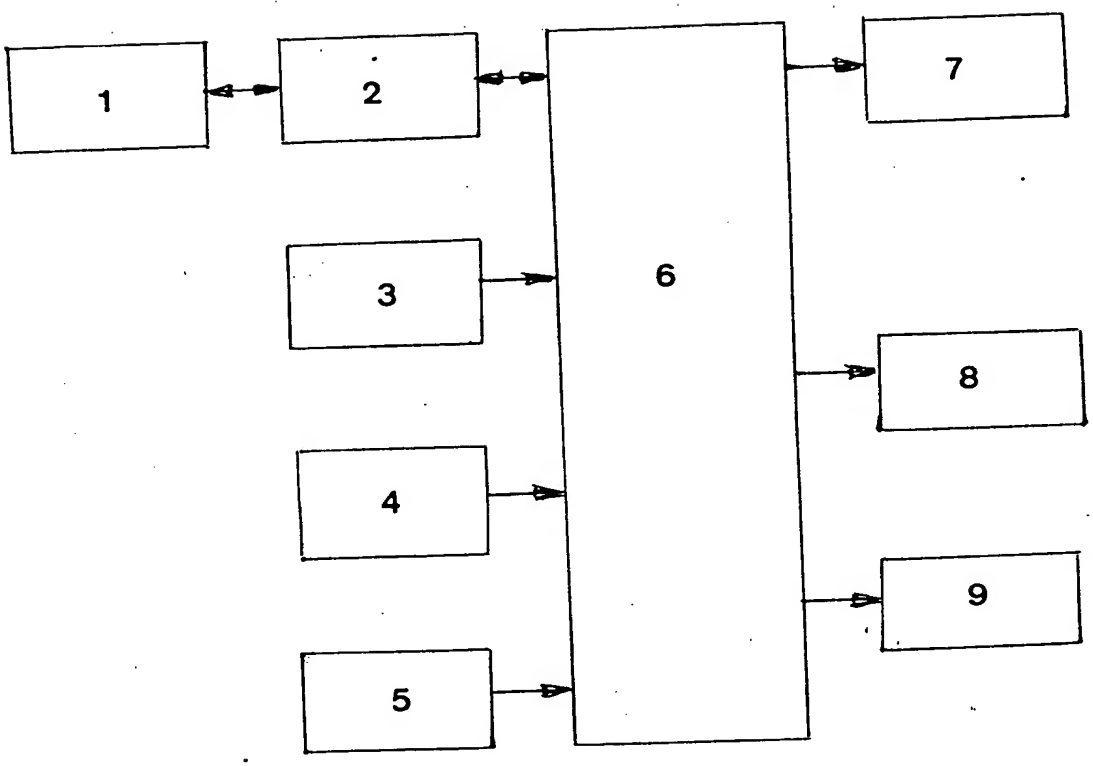
1. Electronic parking meter system for collecting fees for parking vehicles, identifiable by possessing a central control system /6/, which includes the first input for the signal of the signal of the payment card interface /2/, the second input of the keyboard system /3/, third input for signal of a time generator /4/, the fourth input for the signal from the supply system /5/ and includes the first output connected with the payment card interface /2/, the second output with the visual indicator /7/, the second output connected with the voice notification system /8/, the third output connected with the sound notification system /9/, and the payment card /1/ has an input for a signal from payment card interface /2/ and an output to the payment card interface /2/.

2. The method of collecting payments by the electronic system of the parking meter for parking vehicles, according to author's claim No. 1, is identifiable by being based on two phases of the payment cycle, while the order of the phases has no importance. The first phase of the cycle starts by transmitting the signal from payment card /1/ by means of the payment card interface /2/ to the control unit /6/. After a signal from keyboard system /3/ occurred in result of switching it on, and after verification and acceptance of the payment card by the control unit /2/ was made, a transfer of the lump fee for parking takes place from the payment card /1/ to the payment card interface system /2/, and from this place to the control unit /6/, which sets up an individual account in its storage, in which it stores an identifier of the payment card and the value of the fee paid, and also sends signals to the systems of the visual indicator /7/, voice system /8/ and sound notification system /9/, starting the process of decreasing the state of the account, assigned to the time base selected from the keyboard system /9/ in line with the tact of the signal from the generator /4/.

3. The electronic system of the parking meter, according to the author's claims No. 1 and 2, is identifiable by the fact that the second phase of the payment cycle starts by a transfer of signal from the payment card /1/ through the interface of payment card /2/ to the control unit /6/, and if the identification code of the payment card /1/ is compatible with the code of one of the accounts of the control unit /6/, and if the state of the account, associated with the code of the payment card, is positive then the control unit /6/ sends a signal to the payment card interface /2/, and the interface makes a return of the unused fee to the payment card /1/. In the same time, the control unit /6/ sends signals to the systems of visual indicator /7/, voice system /8/ and sound notification system /9/.

Agenor Krygler
Illegible signature

Alicja Krygler
Illegible signature


1
2
3
4
5
6
7
8
9